What Is Claimed Is:

1. A photoelectric conversion device having a plurality of pixel cells each of which includes a photoelectric conversion element, a field effect transistor having the gate area for storing signal charge generated by said photoelectric conversion element and the source-drain path for outputting a signal corresponding to the signal charge stored in the gate, a first power supply line for supplying electric power to said field effect transistor, and a first switch connected between said field effect transistor and said first power supply line, said device is characterized in that,

when a reset voltage for resetting the gate of said field effect transistor is V_{sig0}, a threshold voltage of said field effect transistor is V_{th}, current flowing through said field effect transistor is I_a, a voltage applied via said first power supply line is V_{c1}, and a series resistance of said first switch is R_{on}, each pixel cell satisfies a condition determined by

$$V_{c1} - R_{on} \times I_a > V_{sig0} - V_{th}.$$

2. The photoelectric conversion device according to claim 1, wherein each of said pixel cells further comprises a second switch for resetting said gate area

of said field effect transistor, and said first switch and said second switch are field effect transistors having different threshold voltages from each other.

3. The photoelectric conversion device according to claim 2, wherein said first switch and said second switch are made to have different threshold voltages by making channel regions of said first switch and said second switch have different impurity concentrations from each other.

4. The photoelectric conversion device according to claim 2, wherein said first switch and said second switch are made to have different threshold voltages by making well regions of said first switch and said second switch have different impurity concentrations from each other.

5. The photoelectric conversion device according to claim 2, wherein said first switch and said second switch are made to have different threshold voltages by making gate dielectric films of said first switch and said second switch have different thickness from each other.

6. The photoelectric conversion device according to claim 2, wherein said first switch and said second switch are made to have different threshold voltages by making gate dielectric films of said first switch and said second switch with different materials having different dielectric constants from each other.

7. The photoelectric conversion device according to claim 2, wherein said first switch and said second switch are formed on different well regions which are isolated from each other, and said first switch and said second switch are made to have different threshold voltages by applying different voltages to said respective well regions.

8. The photoelectric conversion device according to claim 2, wherein said first switch and said second switch are insulated-gate field effect transistors, and said first switch and said second switch are made to have different threshold voltages by making said first switch and said second switch have different gate lengths from each other.

9. The photoelectric conversion device according to claim 2, wherein said first switch and said second switch are insulated-gate field effect transistors, and

said first switch and said second switch are made to have different threshold voltages by making said first switch and said second switch have different gate widths from each other.

10. The photoelectric conversion device according to claim 1, wherein each of said pixel cells further comprises a second switch for resetting said gate area of said field effect transistor, said first switch and said second switch are field effect transistors, and different voltages are applied to gates of said first switch and said second switch.

11. The photoelectric conversion device according to claim 1, wherein each of said pixel cells further comprises a second switch for resetting said gate area of said field effect transistor and a second power supply line for supplying electric power of a voltage, different from the voltage applied via said first power supply line, to said second switch, and said first switch and said second switch are field effect transistors.

12. The photoelectric conversion device according to claim 1, wherein each of said pixel cells further comprises a second switch for resetting said gate area

of said field effect transistor and a capacitor formed between said second switch and the gate area of said field effect transistor, and the gate voltage of said field effect transistor is controlled via said capacitor.

13. The photoelectric conversion device according to claim 1, wherein each of said pixel cells further comprises a second switch for resetting said gate area of said field effect transistor and a third switch connected between said photoelectric conversion element and an intersection of said second switch and the gate area of said field effect transistor, and capacitance of the gate area of said field effect transistor is set lower than capacitance of said photoelectric conversion element.

14. The photoelectric conversion device according to claim 1, wherein each of said pixel cells further comprises a second switch for resetting said gate area of said field effect transistor, and said first switch and said second switch are field effect transistors, and, when mobility is μ, capacitance of gate oxide per unit area is Cox, gate width is W, and gate length is L in said first switch, and $K = 1/2 \times \mu \times Cox \times W/L$, a threshold voltage of said second switch is V_{th0}, a threshold voltage of said first switch is V_{th1}, the gate

voltage of said second switch is V2, and the gate voltage of said first switch is V3, then, each pixel cell satisfies a condition determined by

$$V3 - V_{th1} - (I_a/K)^{1/2} > V2 - V_{th0} - V_{th}.$$

15. The photoelectric conversion device according to claim 14, wherein the gate voltage V2 of said second switch and the gate voltage V3 of said first switch are controlled equal, and the threshold voltage V_{th} of said field effect transistor, the threshold voltage V_{th0} of said second switch and the threshold voltage V_{th1} of said first switch are set equal.

16. The photoelectric conversion device according to claim 14, wherein the gate voltage V2 of said second switch and the gate voltage V3 of said first switch are controlled equal, and the threshold voltage V_{th0} of said second switch is set different from the threshold voltage V_{th1} of said first switch are set equal.

17. The photoelectric conversion device according to claim 14, wherein the gate voltage V2 of said second switch is controlled to be different from the gate voltage V3 of said first switch, and the threshold voltage V_{th0} of said second switch is set different from

the threshold voltage V_{th1} of said first switch are set equal.

18. The photoelectric conversion device according to claim 1, wherein each of said pixel cells further comprises a second switch for resetting said gate area of said field effect transistor, and said first switch and said second switch are field effect transistors, and, when mobility is μ, capacitance of gate oxide per unit area is Cox, gate width is W, and gate length is L in said first switch, and $K = 1/2 \times \mu \times Cox \times W/L$, a threshold voltage of said second switch is V_{th0}, a threshold voltage of said first switch is V_{th1}, the gate voltage of said second switch is V2, and the gate voltage of said first switch is V3, then, each pixel cell satisfies a condition determined by

$$V3 - V_{th1} - (I_a/K + (V3 - V_{c1} - V_{th1})^2)^{1/2} > V2 - V_{th0} - V_{th}.$$

19. The photoelectric conversion device according to claim 1, wherein each of said pixel cells further comprises a second switch for resetting said gate area of said field effect transistor and a second power supply line for supplying electric power of a voltage, different from the voltage applied via said first power supply line, and said first switch and said second

switch are field effect transistors, and, when mobility is μ, capacitance of gate oxide per unit area is Cox, gate width is W, and gate length is L in said first switch, and $K = 1/2 \times \mu \times Cox \times W/L$, a threshold voltage of said second switch is V_{th0}, a threshold voltage of said first switch is V_{th1}, the gate voltage of said second switch is V2, the gate voltage of said first switch is V3, and the voltage applied via said second power supply line is V_{c2}, then, each pixel cell satisfies a condition determined by

$$V3 - V_{th1} - (I_a/K)^{1/2} > V_{c2} - V_{th}$$

where $V_{c2} \leq V2 - V_{th0}$.

20. The photoelectric conversion device according to claim 1, wherein each of said pixel cells further comprises a second switch for resetting said gate area of said field effect transistor and a second power supply line for supplying electric power of a voltage, different from the voltage applied via said first power supply line, and said first switch and said second switch are field effect transistors, and, when mobility is μ, capacitance of gate oxide per unit area is Cox, gate width is W, and gate length is L in said first switch, and $K = 1/2 \times \mu \times Cox \times W/L$, a threshold voltage of said second switch is V_{th0}, a threshold voltage of said first switch is V_{th1}, the gate voltage of said second

switch is V2, the gate voltage of said first switch is V3, and the voltage applied via said second power supply line is V_{c2}, then, each pixel cell satisfies a condition determined by

$$V3 - V_{th1} - (I_a/K + (V3 - V_{c1} - V_{th1})^2)^{1/2} > V_{c2} - V_{th}$$

where $V_{c2} \leq V2 - V_{th0}$.

21. A photoelectric conversion device having a plurality of pixel cells each of which includes a photoelectric conversion element, a first switch for transferring charge generated by said photoelectric conversion element, a field effect transistor, having the gate area for receiving the transferred charge, for outputting a signal corresponding to the charge stored in the gate area, and a second switch for resetting the gate area of said field effect transistor, said device is characterized in that,

threshold voltages of said first switch and said second are made different from a threshold voltage of said field effect transistor.

22. The photoelectric conversion device according to claim 21, wherein the threshold voltage of said field effect transistor is greater than the threshold voltages of said first switch and said second switch.

23. The photoelectric conversion device according to claim 21, wherein each of said pixel cells further includes a third switch connected between said field effect transistor and a power supply for providing electric power to said field effect transistor.

24. The photoelectric conversion device according to claim 21, wherein said second switch and said third switch are field effect transistors having different threshold voltages from each other.

25. The photoelectric conversion device according to claim 21, wherein said first switch and said second switch are field effect transistors, and the threshold voltage of said field effect transistor for outputting signals is made different from the threshold voltages of said first switch and said second switch by making an impurity concentration in channel region of said field effect transistor be different from impurity concentrations in channel regions of said first switch and said second switch.

26. The photoelectric conversion device according to claim 25, wherein the threshold voltage of said field effect transistor for outputting a signal is made different from the threshold voltages of said first

switch and said second switch by doping all the channel regions of said field effect transistor for outputting a signal, said first switch, and said second switch with dopant of a predetermined impurity concentration, first, then further doping a channel region of said field effect transistor for outputting a signal.

27. The photoelectric conversion device according to claim 21, wherein said first switch and said second switch are field effect transistors, and the threshold of said field effect transistor for outputting a signal is made different from the threshold voltages of said first switch and said second switch by making well region of said field effect transistor for outputting a signal have an impurity concentration different from well regions of said first switch and said second switch.

28. The photoelectric conversion device according to claim 21, wherein said first switch and said second switch are field effect transistors, and the threshold of said field effect transistor for outputting a signal is made different from the threshold voltages of said first switch and said second switch by making the gate dielectric film of said field effect transistor for outputting a signal have a thickness different from

thickness of gate dielectric films of said first switch and said second switch.

29. The photoelectric conversion device according to claim 21, wherein said first switch and said second switch are field effect transistors, and the threshold of said field effect transistor for outputting a signal is made different from the threshold voltages of said first switch and said second switch by making the gate dielectric film of said field effect transistor for outputting a signal with material having dielectric constant different from dielectric constants of gate dielectric films of said first switch and said second switch.

30. The photoelectric conversion device according to claim 21, wherein said first switch and said second switch are field effect transistors, and said field effect transistor for outputting a signal, said first switch and said second switch are formed on different well regions which are isolated from each other, and the threshold of said field effect transistor for outputting a signal is made different from the threshold voltages of said first switch and said second switch by applying a voltage, different from a voltage applied to the well

regions of said first switch and second switch, to said field effect transistor for outputting a signal.

31. The photoelectric conversion device according to claim 21, wherein said first switch and said second switch are field effect transistors, and the threshold of said field effect transistor for outputting a signal is made different from the threshold voltages of said first switch and said second switch by making said field effect transistor for outputting a signal have gate length different from gate length of said first switch and said second switch.

32. The photoelectric conversion device according to claim 21, wherein said first switch and said second switch are field effect transistors, and the threshold of said field effect transistor for outputting a signal is made different from the threshold voltages of said first switch and said second switch by making said field effect transistor for outputting a signal have gate width different from gate width of said first switch and said second switch.